DSP for Embedded and Real-Time Systems

Expert Guide

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CHAPTER 5

FPGA in Wireless Communications Applications

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Introduction

In the past decade we have witnessed explosive growth in the wireless communications industry with over 4 billion subscribers worldwide. While first and second generation systems focused on voice communications, third generation networks (3GPP and 3GPP2) embraced code division multiple access (CDMA) and had a strong focus on enabling wireless data services. As we reflect on the rollout of 3G services, the reality is that first generation 3G systems did not entirely fulfill the promise of high-speed transmission, and the rates supported in practice were much lower than those claimed in the standards. Enhanced 3G systems were subsequently deployed to address the deficiencies. However, the data rate capabilities and network architecture of these systems were insufficient to address the insatiable consumer and business sector demand for the nomadic delivery of media and datacentric services to an increasingly rich set of mobile platforms.

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